

Flight, January 21, 1911

FLIGHT

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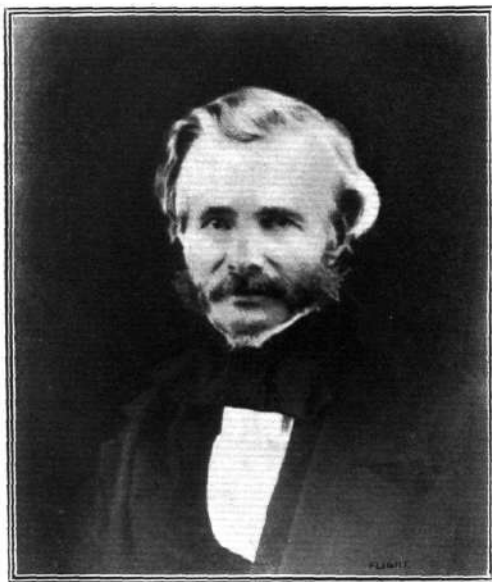
Mr. Morison and his Blériot at the moment before starting from Brooklands Aerodrome last Saturday for his flight to Hurst Park and back.

F. J. STRINGFELLOW.

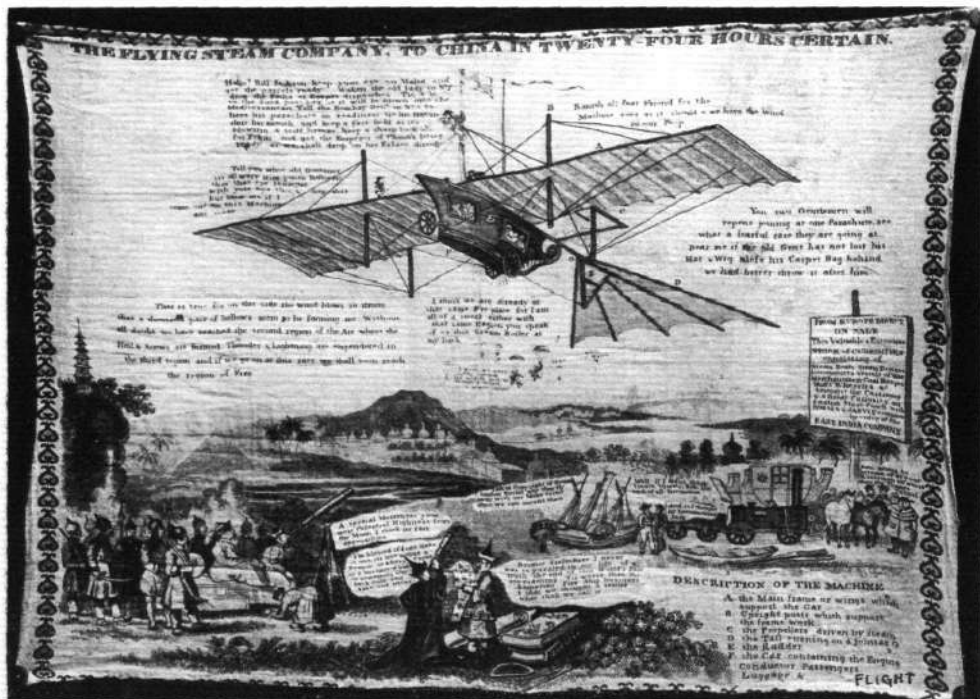
THE death of Mr. F. J. Stringfellow, son of the famous J. Stringfellow, which occurred at Bristol on New Year's Day, is the breaking of yet another direct link with the very foundation of the science of flight in this country, for it was his father who made the first successful power-driven model, which demonstrated the phenomenon of dynamic flight for the first time, in 1848.

Previously, J. Stringfellow was associated with W. S. Henson, and together they produced a model, which was not successful on trial, but is perhaps the best known of all early ideas in flying machines. It is the subject of many curious old prints, and it is rather a coincidence that we should have just received from the Rev. Sidney Swann an excellent photograph of an old printed handkerchief belonging to Mrs. Mackintosh, of Edinburgh, showing a cartoon illustration in which the Henson and Stringfellow model is the central figure. A reproduction of this photograph appears on this page, and one of the most remarkable features of the machine is the trussing of the main planes in a manner identical with that of the Antoinette monoplane of the present day. Indeed, the machine as a whole might have been a copy, rather than the prototype, of the modern monoplane.

J. Stringfellow's successful model was designed on similar lines, but was even more closely in accord with modern principles. F. J. Stringfellow, son of J. Stringfellow, carried on his father's work and built a biplane model, but he was unable to properly complete his experiments. Quite apart from the interest associated with the construction of the models as flying machines, it is equally important to remember that the Stringfellows showed remarkable ability in the making of small engines, which is quite a problem in itself and has exercised the minds of many other flight pioneers. We also reproduce on this page a portrait of the late J. Stringfellow, kindly sent us by Mrs. F. J. Stringfellow, with whom, in her present trouble, our readers will, we feel sure, join us in an expression of sympathy. All the machinery of his father's models Mr. F. J. Stringfellow has bequeathed to his youngest son, Mr. E. Stringfellow.



J. Stringfellow.



The curious old handkerchief which chronicles the popular jokes of the period under the heading of "The Flying Steam Company, To China in twenty-four hours certain," which were directed at the machine so very much like the Antoinette of to-day, designed about 1848 by Stringfellow and Henson. This picture has been placed at our disposal by the Rev. Sidney Swann.

AERONAUTICAL TERMINOLOGY.

PRELIMINARY REPORT OF THE AERONAUTICAL SOCIETY'S TECHNICAL WORDS COMMITTEE.

IN view of the somewhat confused state of aeronautical terminology at present prevailing, a Technical Words Committee was appointed by the Aeronautical Society of Great Britain to draft a list of technical terms relating to aeronautics, and to define their meaning. The work of the committee has proceeded along systematic lines, and has already resulted in the compilation of a glossary of the more general terms in use. It was decided, therefore, to issue this list forthwith, in the form of a preliminary report, as it fairly well covers the technical vocabulary involved in the ordinary course of aeronautical work. Since uniformity in this matter is essential, it is hoped that all writers on aeronautical subjects will generously sink individualism where necessary by co-operating in the systematic use of the following terms. In due course the committee hope to issue a glossary covering the whole range of aeronautical terminology, but the work of selection and definition is necessarily slow when conscientiously undertaken. The committee wish to draw attention to the fact that they have aimed at making their definitions of technical terms as simple and commonplace as possible. The definition of ordinary dictionary words that are sometimes used technically has, as far as possible, been avoided, in order to give that latitude of expression so much desired by all writers. In a few cases where certain words are used in contrary senses by different schools of writers—such as “aerodrome” and “airship”—the committee have been forced to take arbitrary action; it is particularly in respect to the use of such words that the committee hope to meet with the support of the public.

General Terms.

Aeronautics—The entire science of aerial navigation.
Aerostatics—The science of buoyancy in air by means of displacement; this is, therefore, the term to be applied to the science of aerostation.

Aerodynamics—The science relating to the effects produced by air in motion; this is, therefore, the term to be applied to the science of aviation.

Aerostation—That part of aerial navigation dealing with gas-borne or “lighter-than-air” machines.

Aviation—That part of aerial navigation dealing with dynamically-raised or “heavier-than-air” machines.

Aeronaut—One who practises any branch of aerial navigation.

Pilot—One who practises aviation.

Engineer—In charge of the power-plant.

Helmsman—In charge of the steering.

Shed—The use of the term *shed* is recommended instead of *hangar*.

Harbour—A natural or artificial shelter.

Aerodrome—A ground set apart for flying purposes. The committee do not recommend this term, but, in view of its somewhat general use, suggest that it should be employed only in the above sense. This suggestion is made without prejudice either to its derivation or to its application in another sense by authors such as Langley, Lancheater and Graham Bell.

Dirigible—A power-driven balloon.

Airship—This term having occasionally been used to denote *aeroplane*, the committee recommend its use only in the sense of *dirigible* in order to avoid confusion.

Helicopter—A flying-machine supported by one or more screw propellers rotating on vertical or approximately vertical shafts.

Ornithopter—A “flapping-wing” machine.

Flying-machine—A generic term denoting machines used in aviation, as distinct from those employed in aerostation.

Aeroplane—A flying machine provided with fixed planes supported dynamically by its movement through the air.

This term should *not* be used to denote the planes themselves, but should only apply to the whole machine.

Glider—An aeroplane unprovided with motive power.

Multiplane—An aeroplane with two or more main planes overlapping in plan-form.

Biplane—An aeroplane with two superposed main planes overlapping in plan-form.

Monoplane—An aeroplane with a single main supporting plane, which may consist of a pair of wings outstretched on either side of a central body.

Tandem, Stepped—In some cases aeroplanes have more than one pair of wings, which may or may not be on the same level; such planes, if they do not overlap in plan-form, must necessarily be arranged in “tandem”; when not on the same level they are said to be “stepped.”

For instance, “an aeroplane having three pairs of wings stepped in tandem.”

Principal Dimensions.

Area—This term is not a technical definition unless qualified by an adjective, as, for instance, “supporting” or “effective” area.

By area is meant, in the case of planes, the area of the plan-form and is therefore measured in units of double surface. That is to say, both sides or surfaces are counted as one unit of area. Thus, by an area of 500 square feet is implied a surface of twice 500 square feet.

Surface—Attention is drawn to the distinction that exists between surface and area. See *Area*.

Weight—This being a general term, should only be used when qualified by an adjective, such as “net weight.”

Net Weight—The weight of the complete machine *exclusive* of variable quantities, such as pilot, fuel, lubricants, &c.

Gross Weight—The weight of the complete machine *inclusive* of all variable quantities, *i.e.*, pilot, fuel, lubricants, &c.

Loading—The loading of a machine is its gross weight in pounds divided by the supporting area in square feet.

Principal Parts.

Plane—Any element of area used for dynamic support or control. In pure aerodynamics the term should only be used with a qualifying adjective such as “flat,” “curved,” or “cambered.” The prefix “aero” is restricted to the complete machine defined as an “aeroplane.”

Wing—The present use of this term, by analogy with natural flight, denotes each of a pair of planes outstretched on either side of a central body, which wings, if continuous, would form a single plane.

Body—In flying machines the central longitudinal framework to which the planes and organs of control and propulsion are attached.

Carriage—That part of the machine beneath the body intended for its support on land or water.

Tail—In flying machines a plane or group of subsidiary planes, which may include both horizontal and vertical planes, behind the main planes.

Elevator—A movable plane or group of planes for directing and controlling the machine vertically.

Rudder—A plane or group of planes for guiding a machine to right or left.

Balancer—In aeroplanes an organ—usually a plane—for maintaining lateral equilibrium.



Mr. Gilmour has a look round before settling down in his seat in “Big Bat” Blériot for a spin round Brooklands Aerodrome.

BRITISH NOTES OF THE WEEK.

British Army Paulhan Biplane.

At Buc, on Wednesday of last week, Caille successfully put the Paulhan biplane intended for use in the British Army through a series of tests. The conditions imposed were that the machine should fly for two hours with a passenger as well as 200 kilogs. of ballast, in a wind blowing at the rate of 25 miles an hour, and make a gliding flight, with the engine stopped, from a height of 200 metres. Capt. Fulton, who represented the British Army at these tests, has, we understand, accepted delivery of the machine on behalf of the Government.

Aeronautical Classics.

THE fifth of this series will be published immediately by the Aeronautical Society. This volume is entitled "Gliding, by Percy S. Pilcher, to which is added the Aeronautical Work of John Stringfellow."

The volume, published at one shilling, is illustrated with photographs, diagrams and portraits, and matter never before published. There is memoir, with details of all his gliders, of Pilcher, whose lecture before the Military Society of Ireland is here reprinted for the first time. The section devoted to Stringfellow contains, *inter alia*, an account of the famous Henson-Stringfellow monoplane, with the text of several unpublished letters from Henson, and the original agreement and prospectus.

Mr. Maurice Ducrocq's Henry Farman.

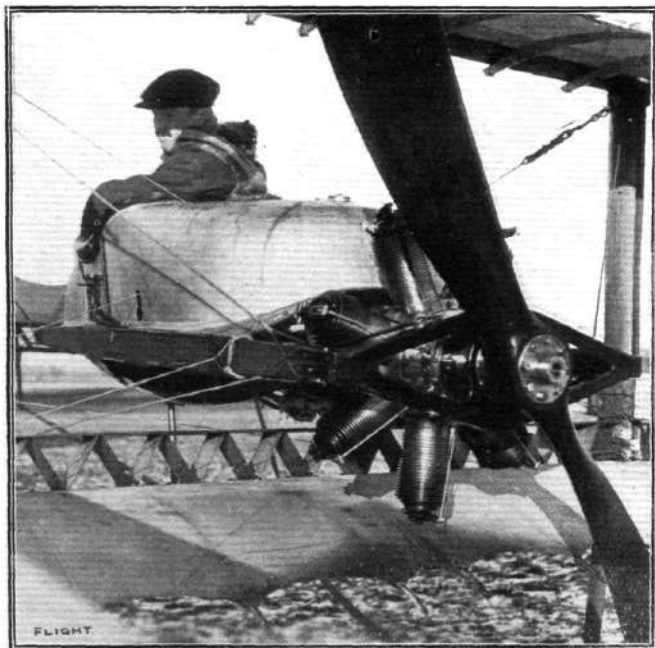
IN our last issue we inadvertently referred to Mr. Ducrocq's Farman machine as being one of the Hewlett-Blondeau School machines. As a fact, although Mr. Ducrocq gained his initiation into the art with such marked success at this Brooklands school, the Henry Farman he now flies so well is his own property, and moreover he is himself now teaching flying at the Brooklands Aerodrome, and in addition to taking pupils is carrying passengers for flights.

Revolution Indicators on Aeroplanes.

ELOQUENT testimony as to the advantage of having an Elliott revolution indicator to motors on aeroplanes is given by the following extract from a letter written by Mr. T. J. Sopwith, who won the



Capt. Fulton, R.A., and M. Paulhan at St. Cyr after the necessary tests of the Paulhan biplane, before delivery to the British Army, were concluded.



Capt. Fulton, R.A., in the pilot's seat of the Gnome-engined Paulhan biplane, of which he has just taken delivery in France on behalf of the British Army. This machine was fully described in **FLIGHT** on October 22nd last.

£4,000 De Forest Prize, to Messrs. Elliott Brothers:—

"I should like you to know how absolutely essential your revolution indicator has been to me flying. I would not be without it for anything, as I practically 'drive on it' the whole time as well as do all engine tests by it.

"During my flight into Belgium it worked magnificently, never giving a moment's trouble, and showing a perfect steady reading."

R.F. Propellers in Great Britain.

THE R.F. propeller made by Regy Frères and used by M. Leblanc at New York, Maurice Ducrocq at Brooklands, and Laurens, Pierre Marie and Louis-Breguet in France, when making their recent record performances, is now represented in this country by Mr. D. Lawrence Santoni, who has secured the exclusive British rights for his firm, the General Aviation Contract Co. After the Gordon-Bennett Race Mr. Grahame-White stated, we are informed, that if his machine at New York had been fitted with an R.F. propeller, as was M. Leblanc's, his speed would have been at least equal if not faster than Leblanc's.

"Beta" in Commission Again.

THE Army airship "Beta" made her reappearance on Tuesday last and carried out the first of a series of instructional trips in the neighbourhood of Farnborough. Captain Broke-Smith was in command, and he was accompanied by Major Sir Alexander Bannerman, Commandant of the Army Balloon Factory. A trip of some 22 miles was made, during which the little airship behaved splendidly. These trips will be continued at every available opportunity during the coming spring and summer for the purpose of instructing various officers in the science of aerial navigation.

FROM THE BRITISH FLYING GROUNDS.



Lieut. Watkins, with Mr. Cecil Pashley as passenger, just prior to a flight at Brooklands last Saturday on Capt. Maitland's "No. 2" Howard Wright.

Royal Aero Club Flying Ground, Eastchurch.

WITH the exception of a flight on the Bristol machine, there was no flying here early in the week. The weather cleared, however, on Saturday. Capt. Wood, 9th Lancers, then made an attempt to fly from Eastchurch to Brooklands, carrying a passenger on a military type Bristol biplane, the idea being that the aviators should change seats at a stopping place half way on the journey. There being a considerable wind off the sea, a preliminary flight was made to Queenborough and back, a distance of about 12 miles, with Mr. Pizey as passenger, when the machine flew so well that, in spite of the somewhat adverse climatic conditions in the way of mist and a tricky wind along the coast, and of the fact that it was the first time Capt. Wood had been on this type of machine, he decided to set out for Brooklands, accompanied by Mr. Low as passenger. The

aviators left Eastchurch about twelve, covered the first six miles in ten minutes, crossed the Swale near the railway bridge, and soon after ran into a bank of fog which completely obscured the ground, and left them dependent on their compass alone. Dropping till they were able to discern the railway, they crossed it and made towards the Medway, which they had intended to strike about a mile south of Chatham. Owing to the mist, they went too much to the south, and emerging from the fog bank, found themselves confronted with thickly wooded high rising ground. Judging it impossible to rise sufficiently quickly to clear this obstacle, Capt. Wood thought it wise to come down about 4 miles south of Chatham, by which time he had covered roughly 25 miles by compass alone. The flight was abandoned with great reluctance, as the machine was flying perfectly and the Gnome engine pulling splendidly, and had it not been for the fog they would have, without question, found no difficulty in reaching their destination.

Very soon after the departure of the Bristol machine, Mr. McClean arrived from town, and immediately went out on one of his Short biplanes. After a trial flight alone, he took up Mr. George Devenish, of Mitcham, for a spin of about 5 minutes. After lunch Mr. Devenish again took the passenger's seat, and the two leaving the aerodrome at a height of from 300 to 400 feet flew round Capel Hill, which is 3 miles away in Shellbeach direction. On returning Mr. McClean circled the ground two or three times, and then planned to earth opposite his shed.

Mr. Travers was also taken up for a fine flight of 7 minutes' duration, the combined weight of pilot and passenger being nearly 26 stone. This Short machine is the machine that Mr. McClean intended to use for the De Forest Prize, except that it is now fitted with a Gnome engine. Mr. McClean afterwards made a solo ascent, flying over Minster at a height of a thousand feet. He travelled as far as Sheerness east. On returning to the ground he remarked that the fog was so thick high up that he entirely lost sight of the earth, and had to repeatedly make downward glides before he could discover his whereabouts. He purposely avoided flying over the town of Sheerness.

Experimental work is taking place in a large number of the sheds, and it is apparent that the Eastchurch ground is especially suited for this class of work, there being not the slightest fear of annoyance or interruption during private work.

Brooklands Aerodrome.

ALTHOUGH, generally speaking, Brooklands provided a busy scene on most days last week, especially at the latter end of the week, Saturday eclipsed them all. Practically every occupant of the sheds at Brooklands was on the ground on that day and taking the utmost advantage of the calm weather. Ample ocular demonstrations were provided too of the way in which the flyers at Brooklands have progressed, for a good many of them ventured outside the ground in the direction of Hurst Park, &c. One of the first out in the morning was Mr. Sopwith, who was flying his Howard Wright machine, and made several trips accompanied by passengers, and shortly afterwards Mr. Ducrocq was following his example on his Henry Farman biplane. Several other machines



Lieut. Watkins flying well at Brooklands on Saturday last on Capt. Maitland's "No. 2" Howard Wright.



Mr. Valentine, who is now flying the Macfie biplane at Brooklands.

were also being tuned up, including Captain Maitland's Howard Wright, which Lieut. Watkins has brought back from Shorncliffe, a couple of Blériots, Mr. Astley's Sommer, the Macfie biplane, and the Weiss and Hanriot monoplanes, with which Mr. Eric England was experimenting. In the afternoon the big Hammond triplane, with twin propellers, was brought out of its shed, and indulged in rolling practice for some time. Soon after lunch Mr. Sopwith was at work again, and flew over to Molesey, on the return journey passing over Hurst Park. His little trip was the signal for several others to follow suit, Mr. Ducrocq making the same journey on his Farman, as also did Mr. Morrison on his Blériot. Lieut. Snowden Smith arrived at Brooklands at about half-past two, and was very interested to hear of these cross-country trips. He then took up the Hewlett and

Blondeau Farman just to see that everything was right, and finding it as usual decided to venture also on a cross-country trip. With no other directions than "Go out that way, turn to the right, and follow the Thames" he started off, and did in fact follow the Thames to Shepperton, Sunbury, and Bushey Park. Turning there he kept the river as his bearing back to Chertsey and Esher, where he was seen to turn and to reach the track at the opposite side from which he had started. He was absent from the aerodrome for about three-quarters of an hour, and this was by far the longest flight, although not intentionally so. The aviator had not had any time to examine a map or to make out any guiding points beforehand, and hence his journey was not as direct as it might have been. Later in the afternoon, Mr. Sopwith carried Miss May Sopwith for a cross-country trip but this time in the opposite direction to Cobham.

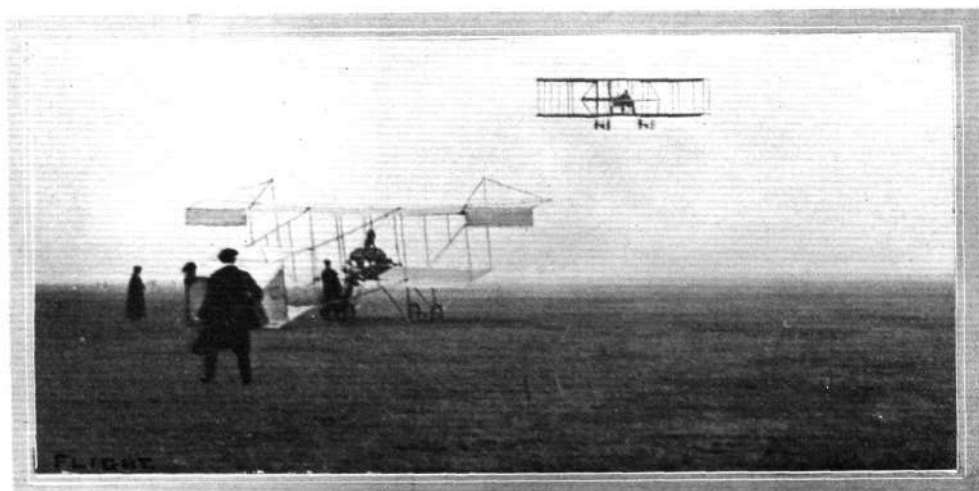
Laffan's Plain.

ON Saturday last Mr. G. de Haviland successfully put his biplane through the tests required before the War Office actually acquired his machine. It will be remembered that his first attempt resulted in considerable damage to the machine, which has since been repaired. The machine is slightly smaller than the best known types, being about 5 ft. deep and 30 ft. wide.

Mr. Haviland made three flights of just over 20 mins. each, at a speed varying between 35 and 40 miles an hour, but never higher than 50 ft. He also made a flight of 70 mins., only descending then by reason of the cold. In addition to the above-mentioned test flights, Mr. Haviland accomplished three with passengers, including Mr. Green and Mr. Hiscock, one of the passengers turning the scale at 14 stone.

Later in the afternoon a fine flight was accomplished at a slightly greater altitude, intense interest being added to the doings when Mr. S. F. Cody joined Mr. Haviland in the air. Mr. Cody's large aeroplane quickly overtook the smaller machine, flying over and past it, rising to a height of nearly 200 ft. After a flight of about 4 miles, Mr. Cody endeavoured to test the gliding capacity of his machine, and planed to the ground, after shutting off the engine power, from a height of 200 ft. Later he executed two more glides—one from a height of over 200 ft.—measuring from the time the engine was shut off to the time he landed over 500 yards. On none of these occasions was there any dip or *vol plane* when the power was shut off.

Then to demonstrate the weight-carrying capacity and balancing of the flyer Mr. Cody took up two passengers, Mr. E. Leroy, in the passenger seat, and Mr. E. Leon, of the P.G.R. Motor Spirit Co., the latter standing on the main front rail of the bottom plane, some distance from the centre. Thus there was nothing to counterbalance the latter passenger's weight on the opposite side. A fine flight was accomplished in this order by Mr. Cody over his Michelin Trophy course, the balance of the machine being unaffected by the uneven distribution of weight, and by the fact that Mr. Leon was standing on the left-hand side, the side on which the turns were taken. The weight of Mr. Cody and his two passengers amounted to over 38 stone, in addition to which the machine was also carrying 230 lbs. of petrol and oil.



Mr. Valentine on the Macfie biplane passing over Mr. Ducrocq's Henry Farman at Brooklands last Saturday.

The London Aerodrome.

Aeronautical Syndicate School.—At various times during Saturday the Valkyrie machines were out, and two of the pupils, Mr. Benson and Lieut. Dimmock, made good solo flights, while several visitors were given trips on the passenger-carrying machine. Advantage was taken of the fine weather on Sunday, when the Valkyrie pilot was kept busy with the request for trips on the passenger-carrying machines. Among those who were favoured were the Hon. Mrs. Assheton Harbord, Mr. O. I. Napier, and Mr. H. J. Walford. Mr. B. G. Benson and Lieut. Dimmock were also out flying on the Valkyrie machines. A good deal of work was also put in by the Valkyrie machines on Monday, and among the passengers carried were Mr. R. N. Studd, Mr. F. J. Krause, and Mr. C. C. Turner. The pupils also made some good trials, while the Aeronautical Syndicate's pilot gave a fine demonstration of sharp turning on the small type "A" machine.

Blériot School.—Several good flights were made on Saturday by Mr. Prier on his Blériot before a number of Japanese military officers. Mr. Prier was flying at a good height, and also carried out several skilful manoeuvres.

Grahame-White School.—Work is already quite brisk down Hendon way. On Saturday, the 7th inst., Greswell, one of the school pilots, made a solo flight of 10 minutes on Farman No. 4, afterwards taking up Carr for a short flight. Hubert attempted a short straight flight without much success, and was then taken up by Greswell for four circuits. Resuming after lunch, Greswell did three circuits, and on descending Mr. Grahame-White made a lengthy flight over the surrounding country, terminating with a splendid *vol plané* from an altitude of about 800 ft. Lieut.-Commander Stuart and Mr. Martin were given passenger-flights, following which M. Hubert had another trial. Greswell afterwards took up four more pupils in succession, Messrs. Turner, Martin, Shaw, and Lieut.-Commander Stuart, thus completing a very full day's flying, he having been in the air altogether for 3½ hours.

Monday was a blank, owing to the continuous rain.

The next day proved better and Greswell by 11 o'clock was out with Farman IV just for a single circuit. Finding the wind troublesome, he descended. At 3.15 he made another solo flight of three circuits, followed by passenger flights of about 10 minutes each with Messrs. Shaw, Hubert and Martin respectively. With Hubert as passenger, Greswell set out at 4 o'clock, this time remaining up for 35 minutes, descending only owing to the approaching darkness.

Climatic conditions on Wednesday, Thursday and Friday proved too abominable for any attempt at air work, but on Saturday last, punctually at 10 o'clock, Greswell brought out Farman IV and flew three circuits in a fog dense enough to render the hangars invisible from a distance of a quarter of a mile. On alighting he took up the following pupils, Messrs. Shaw, Hubert and Martin, for flights of about 10 minutes each. During the flight with Hubert the engine stopped, forcing a *vol plané* from a height of 100 feet.

Lieut.-Commander Stuart then followed as passenger for his third lesson, whilst other passenger flights were with Messrs. Tyrer and Johnstone, after which Commander Cumming was given an extended flight.

At this stage Hubert took charge of the machine and made some straight line flights.

Lieut.-Commander Stuart then thrilled everyone by flying to the end of the aerodrome. Having attained an altitude of 50 ft. he made a splendid turn to the left, and finished up opposite the sheds by attempting a *vol plané* from a height of 40 ft., landing none too gently. This being only his fourth time on an aeroplane, and his first trial alone, his performance was very promising.

After lunch Martin, an American pupil, mounted the machine on the first time alone, and to the astonishment of everyone rose at an alarming angle, and made for the far end of the aerodrome. Rising still higher, he flew right outside the ground, circled the Government Lymph Laboratory, and returning, passed the hangars, then making another lap and landing in good style. This premier exploit on the aeroplane caused considerable trepidation amongst the "school" people and left them in a gasping condition for some considerable time.

Mr. Grahame-White, by way of a change, then took over the machine and after circling the aerodrome, flew away over Finchley. Returning, he landed with a pretty *vol plané* from a height of 400 feet.

It was a great pity that an accident occurred to mar an otherwise excellent day's flying. Lieut.-Commander Stuart flew the Farman for one circuit in quite good style, but landed heavily, carrying away the under chassis, and wrecking the machine. He sustained injuries to the extent of a dislocated elbow and sundry small cuts about the face. He was hurried away to the hospital and we hear that he is making good progress. He has our warmest sympathy, and we wish him a very complete and rapid recovery.

New Forest Aviation School, Beaulieu, Hants.

DURING the week there has been a good deal of practice here. Those who saw his initiation work, are expressing regret that Mr. Kempton Cannon has decided to give up flying on getting married, as he had the requisite touch and eye necessary to become an expert airman. Mr. Wilson was out doing long laps, whilst Mr. Poggioli was indulging in small circular flights as well.

Mr. Tinline's Howard Wright biplane was doing straight flights.

There is one great advantage of this ground, that is, there are two long straights at right angles, both of which diverge into the circular course, so that no matter which way the wind blows the machine can always be at it.

On Saturday morning Mr. A. Aitken made two flights of a couple of circuits each, but during the second he took too sharp a turn at the height and came down on one wheel, which promptly buckled up, but doing no other damage. On Sunday he made a very pretty flight, covering three circuits in about 5 minutes. He has now quite got rid of the habit of keeping the tail down.

The E.N.V. engine on the Howard Wright is now running in first-class form, pulling better than she has ever done before, with the result that nice long steady hops are frequent; when in flight her lines are particularly graceful.

Mr. Poggioli was out again, flying for one circuit and landing in quite the approved style.

Salisbury Plain.

THE closing days of last week up till Saturday were blank, as far as flying was concerned, owing to the weather. On the Wednesday, Lieut. Cammel, R.E., was supervising the finishing touches of the repairs to Col. Capper's monoplane, and on the following day Mr. Carter was busy tuning up the 8-cylinder engine fitted to his biplane illustrated last week.

Saturday opened with a fine frosty morning, and Tetard was out early with the Bristol biplane, accompanied by Versepuy, the Domoiselle pilot. He flew around Bulford Camp for a distance of between 8 and 10 miles, and landed by a fine gliding flight. Later he eclipsed all his previous performances by taking up two passengers, Versepuy and Mr. L. Wright. He was using one of the ordinary type Bristol machines without extensions, and also carried 60 litres of petrol and oil. He rose to a height of about 120 ft., and steered the machine very easily. Later in the day he made several other passenger flights, including one around Stonehenge and Amesbury Village at a height of about 1,000 ft., and another in which his passenger was a lady, who was highly delighted with her experience. Mr. Cockburn was also out on his Farman machine and made a fine flight of about 5 miles, during which he kept his machine very close to the ground. Afterwards his pupil, Lieut. Conner, made several straight line flights, sometimes getting to a height of 40 ft. The lessons were brought to a conclusion through a slight accident, as a result of which two struts were broken as well as a stay wire, which became entangled with the propeller, smashing it. Apart from this, however, the damage was not very serious, and the pilot was unhurt. Mr. Carter was also out on his biplane, but could not make any extended flights as his engine was not pulling properly. Sunday morning was again fine, and Tetard took advantage of it to give some of his pupils a lesson. Monday morning was also frosty and fine, and Tetard was out at early work. Accompanied by Versepuy he made a wide circle round Fargo Camp, and then headed off in the direction of Devizes at a height of 1,200 feet. Arrived there he circled round the Wilts County Asylum, and owing to the fact that his carburettor had frozen up he was forced to land in a field near Monument Hill. It was the first biplane seen so close to Devizes, and naturally a large crowd quickly assembled coming on foot and in motor cars and motor cycles from all parts. In landing the propeller was somewhat damaged owing to striking a large stone, but otherwise the flight was eminently successful.

Mr. Carter had his biplane out once more, but as the engine still remained obdurate he decided to save time by taking it back to the works at Birmingham for certain alterations to be carried out. On the completion of these he will once again return to Salisbury Plain, as he considers that it is one of the finest flying grounds in the kingdom.

Col. Capper's machine was also in evidence, and with the engine running splendidly made several hops along the ground, as a result of which several slight alterations were decided upon.

Having fitted a new propeller to his machine, Tetard on Tuesday flew back to Salisbury, arriving over the grounds at a height of 600 feet. He afterwards took up several pupils for lessons. Col. Capper was also out trying his monoplane, while Mr. Cockburn, having completed the repairs to his biplane, tested it by a couple of circular flights of 5½ miles each, and afterwards Lieut. Conner resumed his lessons and progressed so far as to be able to make some really good turns.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Annual Dinner.

THE ANNUAL DINNER will take place at the PRINCE'S RESTAURANT, Piccadilly, London, W., on TUESDAY, JANUARY 31st, 1911, at 7.30 for 8 o'clock.

The following prizes won during the year will be presented:—

The cash prize of £1,000 attached to the Gordon-Bennett Aviation Trophy to C. Grahame-White.

The Baron de Forest £4,000 prize to T. Sopwith.

British Empire Michelin Cup and cash prize £500 to S. F. Cody.

Royal Aero Club Challenge Cup to Hon. Mrs. Assheton-Harbord.

Members have received a special circular dealing with the annual dinner, and in order to facilitate the arrangements they are requested to notify the Secretary as early as possible if it is their intention to be present. Members may be accompanied by ladies.

Tickets (inclusive of wines, cigars, &c.):—

Gentlemen ... £1 7s. 6d. Ladies ... £1 1s. 0d.

The chair will be taken by His Grace the Duke of Argyll, K.T.

Committee Meeting.

A meeting of the Committee was held on Tuesday, the 17th inst., when there were present:—Mr. Roger W. Wallace, K.C., in the chair, Mr. Ernest C. Bucknall, Mr. F. K. McClean, Mr. J. T. C. Moore-Brabazon, Mr. C. F. Pollock, Mr. A. M. Singer, Mr. Stanley Spooner, and Harold E. Perrin, Secretary.

New Members.—The following new members were elected:—

Capt. H. A. Carter, I.A. James Vernon Martin.

Commander F. Creagh-Osborne, Mrs. Milbank.

R.N. Godfrey Brice Miller.

Lieut. R. B. Davies, R.N. Sub-Lieut. G. C. Muirhead.

Lieut. L. Dimmock, R.G.A. Gould, R.N.

Lieut. Eugene Louis Gerrard, Commander Oliver Schwann,

R.M.L.I. R.N.

John Lewis Longstaffe, Commander Richard Huth

Allan Margetts, Walters, R.N.

Aviators' Certificates.—The following aviators' certificates were granted:—

46. O. C. Morison.

47. James Valentine.

Association.—The agreement with the Irish Aero Club was ordered to be signed.

Life Membership.—To meet the wishes of several members, the Committee of the Royal Aero Club has fixed Life Membership at 25 guineas for existing members and 30 guineas for new members.

Competitions Committee.

A meeting of the Competitions Committee was held on Monday, January 16th, 1911, when there were present:—Mr. Mervyn O'Gorman, in the chair, Mr. Ernest C. Bucknall, Prof. A. K. Huntington, Major F. Lindsay Lloyd, Mr. J. T. C. Moore-Brabazon, Mr. R. W. Wallace, K.C., and Harold E. Perrin, Secretary.

Gordon-Bennett Aviation Cup.—A sub-committee (Mr. Ernest C. Bucknall, Prof. A. K. Huntington, Mr. J. T. C. Moore-

Brabazon) was appointed to inspect various grounds for the Gordon-Bennett International Aviation Race.

"Daily Mail" £10,000 Prize.—The rules to govern this contest were considered.

Compasses for Aeroplanes.

Commander Creagh-Osborne, R.N., and Capt. Nicholson, R.N., 10th members of the Club, accompanied Mr. Perrin, the Secretary, to Brooklands on Saturday last and discussed the question of compasses for aeroplanes. On the suggestion of Commander Creagh-Osborne it is proposed to lay out a ground at Brooklands specially for the correction and testing of the compass equipment in aeroplanes.

Aero Club de France.

The following letter has been received from the Aero Club de France:—

"January 10th, 1911.

"SIR,—We beg to acknowledge receipt of your letter of January 7th.

"The condolences which you addressed to the Aero Club de France on the occasion of the tragic deaths of Lieut. de Caumont and M. Lafont have deeply touched us, and have given us yet another proof of the sentiments of friendship of the Aero Club of Great Britain for the Aero Club of France.

"With best thanks, &c.,

(Signed) "GEORGES BESANCON, General Secretary."

Late Mr. Cecil Grace.

The following letter has been received from the Royal Automobile Club:—

"January 5th, 1911.

"DEAR SIR,—I am directed by the Committee of the Club, which met yesterday evening, to convey to you the following resolution with reference to the sad death of Mr. Cecil Grace:—

"That the Committee of the Club tenders to the Royal Aero Club its deep sympathy in the loss which the Royal Aero Club has sustained in the sad death of Mr. Cecil Grace, who took so prominent a part in aeronautics."

"I beg to remain,

"Yours faithfully,

(Signed) "J. W. ORDE, Secretary."

International Aero Exhibition at Olympia.

The International Aero Exhibition held by the Society of Motor Manufacturers and Traders under the auspices of the Royal Aero Club, will take place at Olympia, opening on Friday, March 10th, 1911, and terminating Saturday, the 18th.

Full particulars can be obtained on application to the Exhibition Manager, Society of Motor Manufacturers and Traders, Maxwell House, Arundel Street, Strand, London, W.C., or the Secretary, Royal Aero Club, 166, Piccadilly, London, W.

In connection with the Exhibition it is proposed to organise an exhibit of model flying machines. Space will be given free, and the Royal Aero Club will erect suitable stands and provide the necessary attendants. In order to partly cover this expense a charge of 10s. will be made for each model exhibited. It is proposed to award Medals and Cash Prizes.

HAROLD E. PERRIN.

166, Piccadilly.

Secretary.

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.

Birmingham Aero Club (165, HAMPTON STREET).

DR. J. R. RATCLIFFE presided over a large attendance at the annual meeting of the club held at headquarters, Hampton Street, last week. In an opening address he reviewed the work of the year, and congratulated the club on its achievements. In their report the committee pointed out that the meagre financial support accorded to their efforts had hampered the research work of the members; but despite this drawback they could look back on a year's work of slow but solid progress. The programme for the future comprised instruction in the mathematics bearing on the theory of flight, and monthly lectures. An exhibition was to be organised, and at least six model competitions would be held, while every effort was to be made to

obtain a ground and erect a shed capable of housing the two aeroplanes and three gliders now in course of construction at the workrooms.

With the exception of Mr. Chatwin, who resigned, the officers and members of the committee were re-elected, Mr. F. Hill being appointed to the chairmanship.

Clapham Aero Club.

STEADY progress is being made by this club now that the workshop has been fitted up and active work commenced. There is, however, plenty of room for new members. The first competition has been fixed for January 28th. Full particulars from the hon. sec., 140, Manor Street, Clapham, S.E.

Conisborough and District Model Ae. Soc. (18, CHURCH ST.).

THE benches have been put up, the workshop is now in full swing, and there is a supply of tools including practically everything used in model making, for the use of members.

The glider has been started, but the work at present chiefly consists in rounding the spars, &c., to stream line form.

It has been decided to give a prize every month for the longest flight by a model, officially observed, during the month.

On Monday, 23rd inst., at 8 p.m., a lecture will be given entitled "Aviation, its Performances and Prospects," by the Secretary to the Conisborough Literary and Debating Society.

Mr. W. W. Norwood has kindly placed at the disposal of the club one of his large fields for the monthly competitions, and flying will take place every Saturday, weather permitting.

Kite and Model Aeroplane Assoc. (27, VICTORY RD., WIMBLEDON)

ON Monday, January 9th, at the offices of the Aeronautical Society, Mr. V. E. Johnson, M.A., lectured on the subject of the gyroscopic control of aeroplanes. By means of models and lantern slides Mr. Johnson explained some experiments he had made with a view to maintaining the stability of an aeroplane by gyroscopic control. As far as he was concerned, he said, he had completed his experiments, but if he were a rich man he would try the system on a full-sized machine. Properly made by a qualified engineer, and worked out on a scientific basis, he did not see why it should not be a success.

Major B. Baden-Powell, who presided, said they might control an aeroplane so as to prevent its rolling, pitching, or dipping, yet they had to remember that in the navigation of the air they continually required the aeroplane to do those very actions. They often wanted to tilt up or turn a little to one side in turning a corner. Although the gyroscope might keep the aeroplane on an even keel, yet they had got to make some arrangements so that when they wished to alter that evenness the gyroscope would not prevent it.

After a discussion and many questions had been answered, the chairman proposed a hearty vote of thanks to Mr. Johnson for his able lectures.

Any readers of FLIGHT wishing to attend Mr. S. F. Cody's lecture, entitled "From Kites to Aeroplanes," which will be given at the Imperial Institute on Thursday, February 9th, at 8 p.m., should write to Mr. W. H. Akehurst, who will be pleased to forward tickets (which are free). The President, Major B. Baden-Powell, will preside.

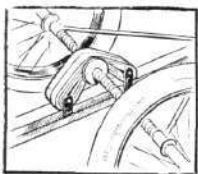
Midland Aero Club (GRAND HOTEL, BIRMINGHAM).

THERE should be a large attendance of members at the meeting to be held on the 24th inst. at the Grand Hotel, Birmingham,



"RUB-METAL" SHOCK ABSORBERS.

ONE of the most important constructional details in connection with aeroplanes is the shock absorber, for although this part only comes into action when the machine is on the ground, or when landing, a



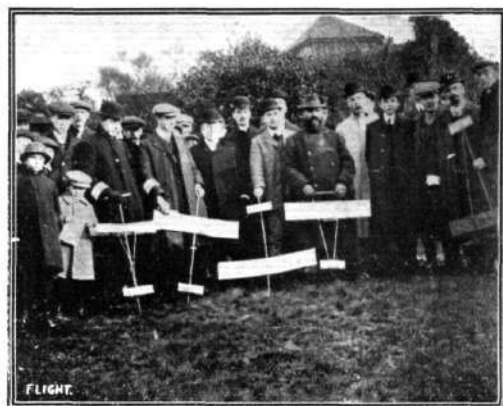
Sketch showing a "Rub-Metal" shock absorber applied to a Farman-type landing chassis.

nasty smash is not improbable should it fail to act. If rubber be employed much depends on its quality; and it is essential that it should be capable of withstanding fairly heavy strains and shocks.

Almagam, Ltd., have put on the market a new shock absorber, made of a patented material named "Rub-Metal," this apparently possessing all the advantages of rubber, but having greater strength and lasting properties. "Rub-Metal" is composed of a combination of metallic salts and gums, amalgamated with pure Para rubber in

certain proportions, according to the resiliency required. The accompanying sketch shows one of these "Rub-Metal" shock absorbers applied to a Farman type landing chassis. It will be noticed that instead of having a series of single bands side by side there are three bands, one within the other. Considerable additional strength is thus obtained.

Among the many claims made for "Rub-Metal" over ordinary rubber and gutta-percha is ability to withstand greater extremes of heat and cold. It is also non-adhesive, and is proof against any deleterious actions of oils or acids, this latter feature making it possible to employ "Rub-Metal" for flexible tubing for use with petrol and lubricating oil. In fact, the firm in question supply various sizes of "Rub-Metal" tubing for this very purpose, and we learn that it is being used with success on several aeroplanes now in use.



Group of the members of the Birmingham Aero Club, taken on the occasion of the model competition at Edgbaston Reservoir on December 27th. Dr. J. Ratcliff, President of the Club, is seen in the middle of the group, while on the extreme right is Mr. Noble, of Wolverhampton, who claims to be the champion flyer of models in the Midlands.

when a lecture, illustrated by limelight views, on the subject of "Competitions for Aeroplanes—their Past, Present and Future," will be given by Mr. H. Massac Buist. Mr. Buist has had a unique experience in that he has attended practically all the important flying meetings, and his observations are bound to be vastly interesting.

Olton and District Model Aeroplane Club.

IN order to band the large number of model aeroplane makers in the Olton district together, the above club has been formed and promises to have quite a successful career. Already a workshop has been obtained, and is in fact in full swing. Full particulars can be obtained from Mr. V. L. Thompson, St. Elmo, St. Bernard's Road, Olton.



AIRSHIP AND BALLOON NEWS.

A Miniature Dirigible.

THE German military authorities are watching with interest the construction of a miniature non-rigid dirigible which is being built to the design of a Swedish engineer, Forsmann, at the Riedinger balloon works at Gersthofen, close to Augsburg. The envelope is 37 metres long, 6 metres in diameter, and has a cubic capacity of 800 metres. Its total weight is said to be 450 kilograms, and the car, which weighs 17 kilograms, is made of steel tubing. It carries a 24-h.p. motor, weighing 38 kilograms. It is being built for the Russian military authorities. The inventor is said to have got his plans ready for a similar airship, but with a capacity of only 600 cubic metres.

Fate of Missing Balloonists.

LIGHT has now been thrown upon the mysterious disappearance of the two aeronauts Kohrs and Keidel, who left Berlin on the 29th of December in the balloon "Hildebrandt" and were not afterwards heard of. Wreckage of the balloon was found this week submerged beneath the half-frozen surface of a lonely lake near Wilderbruch in Southern Pomerania. The lake is in a very desolate part of the country, but it was noticed some days ago that there was a peculiar formation of the snow over the lake. When this melted away it was seen that the remains of a balloon lay below it. As soon as access could be obtained to the spot it was found that both the aeronauts were still in the car, where they had apparently met their death through exposure. The balloon had obviously been brought down by use of the ripping-cord, and it is supposed that in the darkness they mistook the frozen lake for a meadow, and owing to the breaking of the ice by the basket they were unable to make any effective effort to reach the shore, although it was only some 20 yards away.

FOREIGN AVIATION NEWS.

Bathiat on a Sommer Monoplane.

AFTER a fifty minute flight on a Sommer monoplane on Saturday last, Bathiat determined to try a cross-country flight at the first opportunity, and in fact later in the day, although a strong wind was blowing, started off in the direction of Rheims. He landed eventually at Betheny, having covered the 110 kiloms. in 52 minutes, his average altitude being about 400 metres. On the following day he was off again in the direction of Chalons Camp, and landed at Mourmelon after a flight of 22 minutes.

was overtaken by fog and landed there after a flight of 1 hr. 25 mins. On the 15th inst. he resumed his journey, arriving at Mourmelon after a flight of half an hour.

Cross-country Flight on a Deperdussin.

ACCOMPANIED by M. Galliard, on the two-seated Deperdussin monoplane on which he was successful in beating the passenger speed record for 40 kiloms. the other day, Vidart left Mourmelon on the 11th inst. and flew over to Rheims, where he intends to



LATEST VOISIN DESIGN.—Front view of the two-seater, showing the overhanging upper plane and the lightness of the framework generally, which is built up of steel tubes. This machine, with double control gear is specially intended for the Army.

Two New Semmers for the French Army.

ON the 10th inst., at Douzy, Jules Noel carried out the specified tests with two new Sommer biplanes of the military type constructed for the French Army. He rose to a height of 400 metres in 10 minutes, and afterwards made a flight of 2 hours, and then took various members of the Military Commission present for cross-country trips round Douzy.

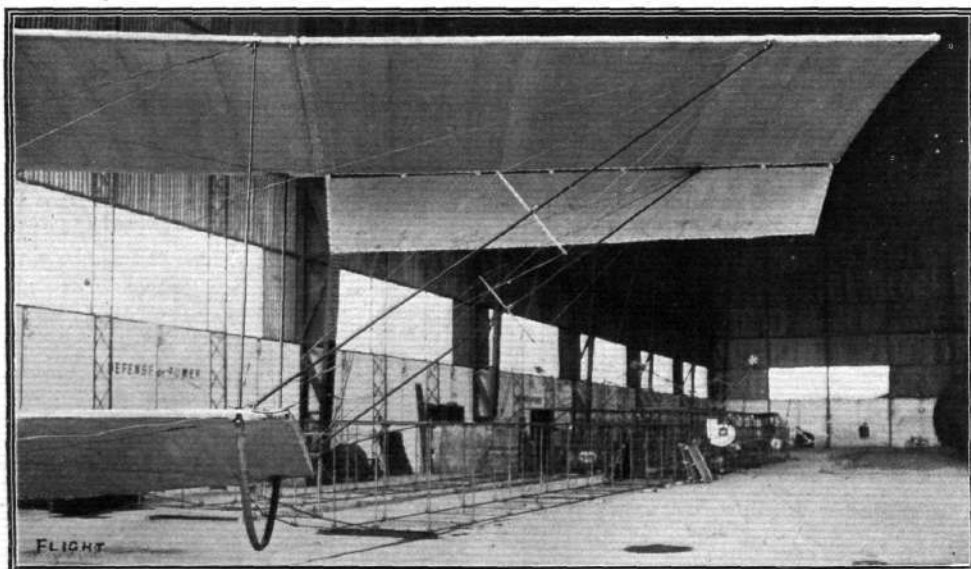
From Vincennes to Mourmelon.

USING his monoplane Lieut. Vence, on the 11th inst., started off from Vincennes with the intention of flying to Chalons Camp. On reaching St. Martin d'Abois, however, not far from Epernay, he

attack the 100 kiloms. passenger speed record at present held by Laurens.

French Military Blériots.

AT Pau, on Saturday, some delegates arrived from the French War Office in order to witness special tests made with two-seated Blériots ordered by the French Government. The tests were made by Lemartin, and three machines were passed on that day. Two other machines were tested on the following day, while on Monday three more were passed, thus making a total of eight accepted by the French Army in three days. The officers who are to fly them are now busy learning at Pau.



LATEST VOISIN DESIGN.—View showing the bracing of the overhung portion of the upper plane.

The Blériot Aerial "Bus."

THE work of erecting the four-seated Blériot at Pau was proceeded with last week, and it is hoped that M. Blériot will shortly make the first trial with it. The passengers will be seated in pairs, side by side, and one behind the other, the seats being arranged under the wings. The machine will probably be fitted with an elevator in front as well as one of the usual type at the rear of the machine. It will have a single propeller driven by two Gnome motors coupled together, these being mounted above the near edge of the main planes.

Prize Winnings in 1910.

ACCORDING to a list compiled by our French contemporary, *L'Auto*, the total amount won by aviators in prizes during last year was 4,705,500 francs (£188,220). Of this amount the greatest portion was netted at Belmont Park, the prize money distributed there being £16,000, Budapest coming second with £14,000. The aviator to secure the largest portion was Paulhan, who took £14,000, Latham coming next with £11,540, Morane being third with £10 short of this amount, and Grahame-White with £10,280.

Three on a Biplane Make Cross-Country Trip.

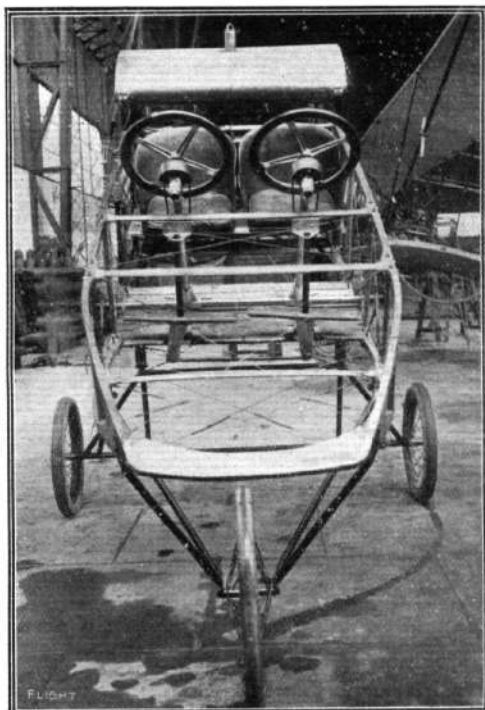
ACCOMPANIED by two of his friends, Weymann on Tuesday succeeded in flying on his Henry Farman machine from Bouy to Coucy le Chateau, a distance of 70 kiloms. A slight mishap with the motor caused them to land on the way, and so the outward journey occupied an hour and a half. After lunch they flew back to Bouy, arriving there about 3 o'clock.

Aero Clubs in Canada.

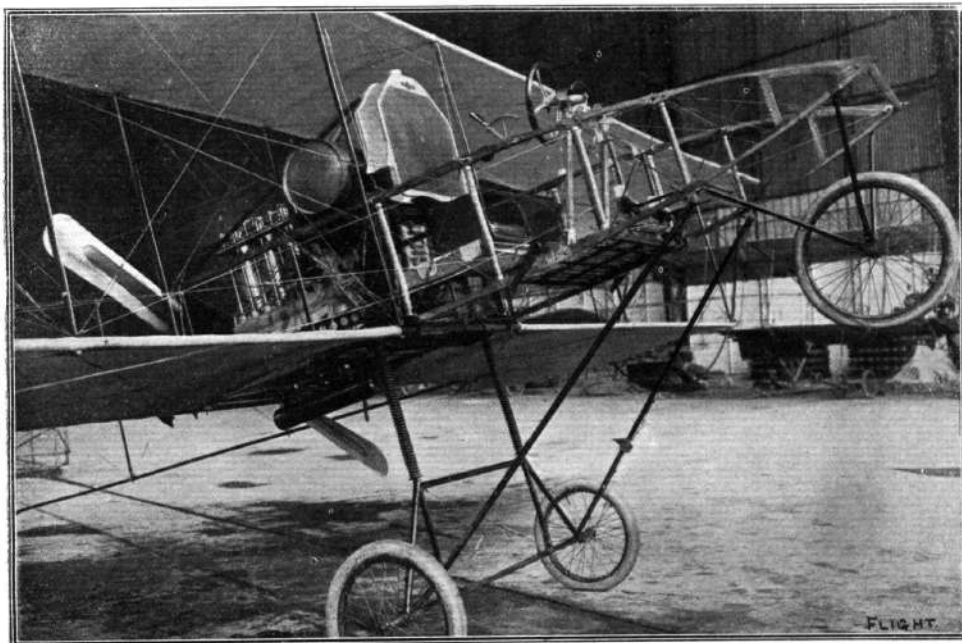
WE are daily being reminded by the way subscriptions for *FLIGHT* come from remote corners of the earth that interest in aviation is world-wide. It may be interesting to many of our readers to learn from one of our correspondents that even in the town of Oshawa, Ontario, for instance, there is a small club which meets once a week for the purpose of discussing flying matters, each member taking a turn at reading a paper.

The Statue of Liberty Prize.

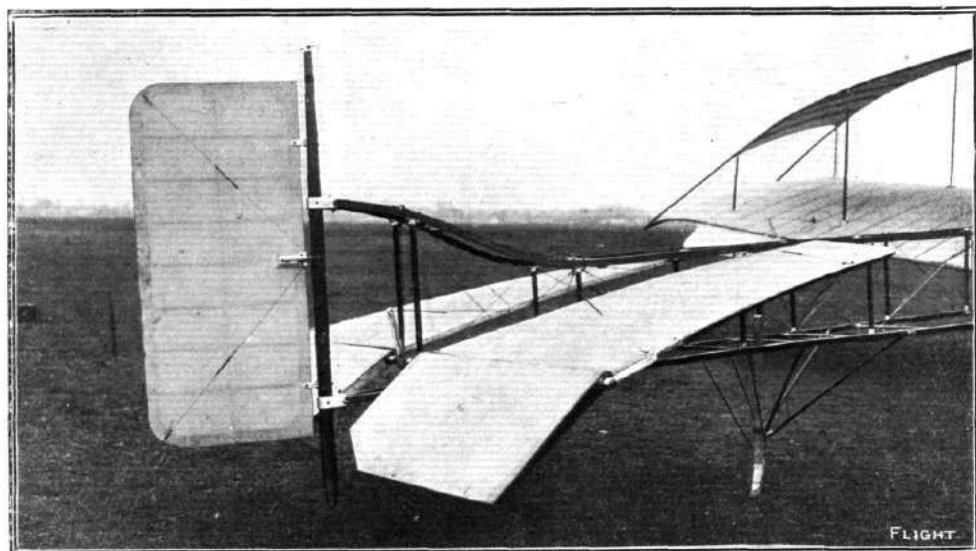
IN response to the request of the Federation Aeronautique Internationale that it should reconsider its decision in connection with the award of the Statue of Liberty Prize, the Executive Committee of the Aero Club of America has stated that the Club's Contest Committee was apprised and approved of all alterations in



LATEST VOISIN DESIGN.—Front view of the body of a two-seater, showing the arrangement of the duplicate steering wheels.



LATEST VOISIN DESIGN.—General view of the body of the two-seater, showing the arrangement of the engine and control.



Tail of the Sloan biplane.

the rules in accordance with Article 29, and therefore their award must stand. Surely the American Aero Club cannot flout the ruling of the F.A.I., at the meeting of which body its own representative was entitled to, and did in fact put forward, on behalf of the club a justification of its award. This evidence, however, was not accepted, and the "verdict" was accordingly against the American Club. It is obvious, therefore, without they bow to the decision of the Federation of which they are a part, they have no alternative but to retire from it or—well, that may come later. In the mean-

time, under the circumstances, one may be permitted to ask whether they are entitled to challenge for either of the Gordon-Bennett Cups or any of the other events held under the rules of the Federation. The only appeal in this case is from Cæsar to Cæsar.

Aviation in India.

FROM a correspondent in India we learn that during the past three months the active interest taken in aviation out there has gone forward remarkably, and that at the present time one hears of



SLOAN BIPLANE.—Engine, propeller, and general carriage arrangements seen from the front, and showing the landing skid construction.

men and machines in practically all quarters of the Empire. Our correspondent points out that it is not improbable that the principal reason for this is that the climate in England during the winter is not so suitable for flying, whereas from October to May is quite the best time for flying in India. In June the monsoons start, and then flying is quite out of the question. Capt. Dawes, who was the first officer in the regular army to obtain a British pilot certificate, was the first flying man to go out to India from Great Britain, but he is entirely confining himself to the military side of aviation.

At Calcutta, Baron de Caters and Jules Tyck have been flying on Farman and Blériot machines respectively, while at Allahabad, Pecquet and Keith Davis, on Humber biplane and monoplane respectively, have been making exhibition flights. Messrs. Thurston and Jullerot are also touring India with their Bristol biplanes, and giving demonstration flights. At the present time only one of the native princes shows the slightest interest in aviation. This is the Maharajah of Patiala, who is a member of the Royal Aero Club, and has purchased a Voisin biplane as well as a Blériot monoplane,

with which it is expected that Mr. Boyes will shortly be making trials. The question of the transport of aeroplanes in India is a big one, as many find to their cost who have not considered it before going out. The people of India are keeping themselves well informed as to the progress in aviation, and the Government departments are also kept *au fait* with developments from a military point of view. At present, however, the Government do not intend either to start a flying school or to train men, but should they ever be requiring machines there is no doubt that they will be bought in Europe and not in India, as some people incline to think.

Bristol Biplanes in India.

A DISTINGUISHED company assembled at Aurangabad on Monday, including no less than nine British Generals, to see Jullerot make a flight of 15 miles. On the following day he was temporarily attached to the Western Army during some manoeuvres, and in the course of a reconnoitring flight in the direction of Jelma successfully located the Eastern force.

LATEST OFFICIAL WORLD'S RECORDS.

Speed Records (by Distance).

With Pilot only.

Aviator and Machine.	Place.	Date.	kils.	Time.
				h. m. s.
A. Leblanc (Blériot) ...	New York	Oct., 1910	50	2 45' 63
"	"	"	100	5 30' 92
"	"	"	200	11 4' 87
"	"	"	300	16 38' 31
"	"	"	400	22 12' 58
"	"	"	500	27 51' 2
C. Grahame-White (Blériot)	"	"	100	1 4' 74
E. Aubrun (Blériot) ...	Bordeaux	Sept., 9, '10	150	1 43' 19
"	"	"	200	2 18' 30
* Pierre Marie (R.E.P.) ...	Buc	Dec. 31, '10	250	3 4' 28
"	"	"	300	3 40' 55
"	"	"	350	4 17' 26
"	"	"	400	4 54' 6
"	"	"	450	5 30' 35
†	"	"	500	6 7' 7

Note.—The next record recognised by the F.A.I. is 700 kiloms. * On December 30th, 1910, Thomas (Antoinette), at Chalons, covered 250 kiloms. in 3h. 7m. 39s.

† On December 30th, 1910, Tabuteau (M. Farman), at Buc, covered 500 kiloms. in 6h. 41m. 13s.

With Pilot and One Passenger.

			kils.	Time.
				h. m. s.
Laurens (R.E.P.) ...	Buc	Dec. 21, '10	100	0 7' 31
"	"	"	200	0 15' 14
"	"	"	300	0 22' 56
+ Vidard (Deperdussin) ...	Mourmelon	Dec. 31, '10	400	0 29' 40
Laurens (R.E.P.) ...	Buc	Dec. 21, '10	500	0 38' 19
"	"	"	600	0 45' 51
"	"	"	700	0 53' 39
"	"	"	800	1 1' 6
"	"	"	900	1 8' 37
"	"	"	1000	1 16' 51

With Pilot and Two Passengers.

			kils.	Time.
				h. m. s.
Mamet (Blériot) ...	Rheims	July 3, 1910	100	0 10' 18
"	"	"	200	0 21' 14
"	"	"	300	0 31' 53
"	"	"	400	0 42' 32
"	"	"	500	0 52' 56
"	"	"	600	1 3' 20
"	"	"	700	1 14' 38
"	"	"	800	1 25' 33
"	"	"	900	1 36' 4

* These distances are not recognised by the F.A.I.

† Laurens' time for 40 kiloms. was 30m. 39s.

Speed Records (by Time).

			Time.	Distance.
			Hrs.	Kiloms.
C. Grahame-White (Blériot)	New York	Oct. 1910	1	97
E. Aubrun (Blériot) ...	Bordeaux	Sept. 9, '10	2	167' 5
"	"	"	3	252' 5
Pierre Marie (R.E.P.) ...	Buc	Dec. 31, '10	4	325' 905
"	"	"	5	407' 675
"	"	"	6	490
M. Tabuteau (M. Farman)	"	Dec. 30, '10	7	522' 936
Henry Farman (H. Farman)	Etampes	Dec. 18, '10	8	451

Distance Records.

Pilot only.

M. Tabuteau (M. Farman) Buc ... Dec. 30, '10 | 584' 745 kilom.

With One Passenger.

Amerigo (Aviatik) ... Mulhouse ... Dec. 11, '10 | 228' 3

With Two Passengers.

Mamet (Blériot) ... Rheims ... July 3, 1910 | 92' 75

Duration Records.

Pilot only.

H. Farman (H. Farman) Etampes ... Dec. 18, '10 | 8h. 12m. 47' 5s.

With One Passenger.

Amerigo (Aviatik) ... Mulhouse ... Dec. 18, '10 | 3h. 19m. 39s.

With Two Passengers.

Mamet (Blériot) ... Rheims ... July 3, 1910 | 1h. 38m. 40s.

Greatest Speed.

A. Leblanc (Blériot) ... New York ... Oct., 1910 | 115' 3 k. p. h.

This was made during the Gordon-Bennett race, the tenth lap (5 kiloms.) being covered in 2m. 36s. It does not, however, rank as the world's record for 5 kiloms.

Height.

A. Hoxsey (Wright) ... Los Angeles Dec. 26, '10 | 3,497 m. (11,474 feet)

Gordon-Bennett Cup.

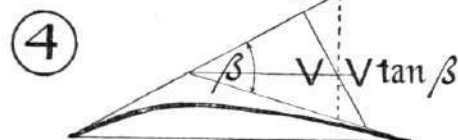
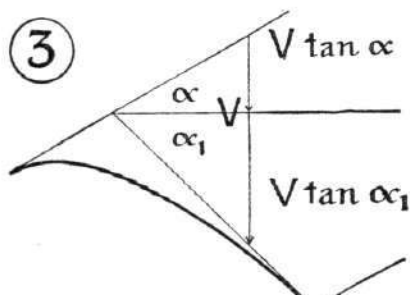
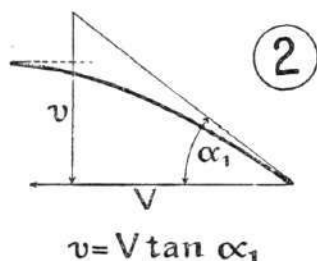
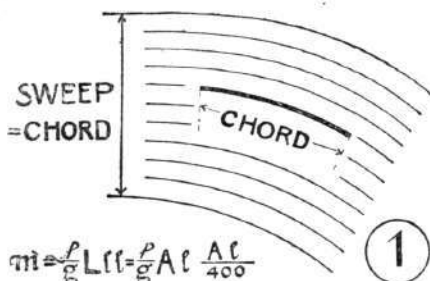
It is interesting in connection with the above records to notice the official times of Mr. Grahame-White and M. A. Leblanc, made in the course of their flights for the Gordon-Bennett Aviation Trophy.

kils.	h. m. s.	m. s.
5	Grahame-White 3 15' 64	Leblanc 2 45' 63
10	" 6 24' 78	" 5 30' 92
15	" 9 32' 85	" 8 17' 67
20	" 12 44' 96	" 11 4' 87
25	" 15 46' 2	" 13 50' 52
30	" 18 49' 78	" 16 38' 31
35	" 22 2' 86	" 19 25' 20
40	" 25 8' 86	" 22 12' 58
45	" 28 16' 52	" 25 15
50	" 31 19' 48	" 27 51' 2
55	" 34 25' 47	" 30 35' 80
60	" 37 25' 23	" 33 23' 80
65	" 40 21' 57	" 36 9' 32
70	" 43 17' 34	" 38 55' 80
75	" 46 15' 22	" 41 41' 40
80	" 49 11' 94	" 44 29' 50
85	" 52 9' 48	" 47 15' 60
90	" 55 8' 34	" 50 4' 38
95	" 58 4' 38	" 52 49' 70
100	" 1 1' 4' 74	

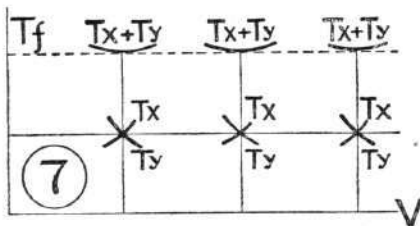
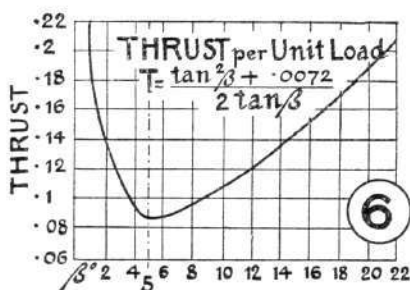
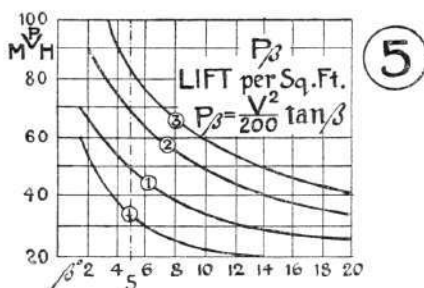
MATHEMATICS OF THE CAMBERED PLANE.

THE second of the Aeronautical Society's course of educational lectures was delivered at the Northampton Institute in November, by Mr. A. E. Berriman, whose subject was "The Mathematics of the Aeroplane." The basis of the theories and formulae put forward was contained in the text of the opening sentence, which enunciated that "an aeroplane is sustained in flight by the inertia of the air." The subsequent treatment of the subject was entirely confined to the evolution of plausible expressions to represent the mass and acceleration of the air affected by the flight of a cambered plane. It is assumed that the effective depth of the air stratum can be expressed as a function of the chord

of the plane, and that the effective angle of deflection can be expressed as a function of the angle of the plane, measured at the intersection of the mean tangents drawn to the entering and trailing edges of the plane. It is important to point out that any discrepancies between theory and practice in this respect can be compensated for by the introduction of a numerical constant in the resultant formulae. The subject divides itself into two sections, one relating to the lift and the other to the thrust, and the complete series of formulae discussed are appended herewith in the order that they were taken, which is somewhat different from that of the original list distributed to those who attended the meeting.



Dotted line shows $V(\tan \alpha + \alpha_1)$



$T_f(\min)$ obtains when $T_x = T_y$
if $T_x \propto V^2$ and $T_y \propto \frac{1}{V^2}$

MATHEMATICS OF THE CAMBERED PLANE.

SUMMARY OF FORMULÆ.

N.B.—These formulæ apply to the plan *alone*; body resistance must be regarded as an independent quantity.

Symbols.

A = Area (sq. ft.).
 f = Acceleration (ft./sec./sec.).
 g = Gravity (ft./sec./sec.).
 hp. = Horse-Power.
 L = Span (ft.).
 l = Chord (ft.).
 m = Mass.

P = Lift or loading (lbs. or lbs./sq. ft.).

P_β = Lift relating to angle β (lbs. or lbs./sq. ft.).

T_f = Thrust required for flight.

T_f/P_β = The "co-efficient of flight."

T_p = Thrust resisted by loading.

T_s = Thrust required to overcome skin friction.

V = Velocity (ft./sec. or m.p.h.).

α = Angle of entry.

α_1 = Angle of trail.

β = Angle of deflection.

\therefore = Therefore.

Lift and loading.

1. $P = mf$.
2. $m = \frac{\rho}{g} L l = \frac{\rho}{g} A l = \frac{A}{400}$ (lbs.)
3. $f = \frac{v}{t}$ (ft./sec./sec.)
4. $v = V \tan \alpha_1$
5. $= V \tan \alpha + \alpha_1$
6. $= V \tan \beta$ (ft./sec.)
[Approximate.]
7. $t = \frac{l}{V}$ (sec.)
8. $\therefore f = \frac{V \tan \beta}{l} = \frac{V^2 \tan \beta}{l}$ (ft./sec./sec.)
9. $\therefore P_\beta = \frac{A l}{400} \left(\frac{V^2 \tan \beta}{l} \right)$ (lbs.)
10. $= \frac{V^2 \tan \beta}{200}$ (lbs./sq. ft.)
[V is in miles per hour.]
11. $\therefore \tan \beta = \frac{200 P_\beta}{V^2}$

Thrust.

12. Energy in mass (m) = $\frac{1}{2} m v^2$ (ft. lbs.)
 $= \frac{A l V^2 \tan^2 \beta}{800}$ (ft. lbs.)
13. Time to energise mass (m):—
 $t = \frac{l}{V}$ (secs.)
14. Rate of communicating energy to deflected stratum of air:—
 $= \frac{A l V^2 \tan^2 \beta}{800} \left(\frac{V}{l} \right)$ (ft. lbs./sec.)
15. $= \frac{A V^3 \tan^2 \beta}{800}$ (ft. lbs./sec.)
16. $= \frac{V^3 \tan^2 \beta}{800}$ (ft. lbs./sec./sq. ft.)
17. Rate of doing work for dynamic support.
18. = Power expended on load.
19. $= T_p V$ (ft. lbs./sec.)
20. $\therefore T_p V = \frac{V^3 \tan^2 \beta}{800}$ (ft. lbs./sec./sq. ft.)
21. $\therefore T_p = \frac{V^2 \tan^2 \beta}{400}$ (lbs. thrust/sq. ft.)
[V is in miles per hour.]
22. $\therefore P_\beta = \frac{V^2 \tan^2 \beta}{400 \tan \beta} = \frac{V^2 \tan \beta}{400}$
23. $\therefore T_p \propto V^2$ for a constant loading.
[From formula 11.]
24. Thrust to overcome skin friction.
 $= T_s$
25. $T_s = '000018 V^2$ [empirical] (lbs./sq. ft. double surface)
[V is miles per hour.]
26. Total thrust required to maintain the plane *alone* in flight = T_f
27. $T_f = T_p + T_s$
28. $= \left[\frac{V^2 \tan^2 \beta}{400} + '000018 V^2 \right]$ (lbs. thrust/sq. ft.)
29. $= V^2 \left[\frac{\tan^2 \beta}{400} + '000018 \right]$

Thrust—contd.

30. $T_f/P_\beta = V^2 \left[\frac{\tan^2 \beta}{400} + '000018 \right]$
31. $= \frac{200 \left[\tan^2 \beta + '0072 \right]}{\tan \beta}$
32. $= \left[\frac{\tan^2 \beta + '0072}{2 \tan \beta} \right]$ (lbs. thrust per lb. loading)
33. $\therefore T_f/P_\beta$ varies with $\tan \beta$.
34. $\therefore T_f/P_\beta$ is independent of V, while $\tan \beta$ is constant.
35. Power.
36. Power expended on the flight of the planes *alone*
 $= T_f V$ (mile lbs. per hour.)
[V is in miles per hour.]
37. $= \frac{V^3 \left[\tan^2 \beta + '000018 \right]}{375}$ (hp./sq. ft.)
38. $= \frac{V \left[\tan^2 \beta + '0072 \right]}{375}$ (hp./lb. loading.)
39. The two-thirds-power law:—
For constant β and A.
Power $\propto V^3$ [formula 38.]
And Lift $\propto V^2$ [formula 10.]
 \therefore Loading $\propto (hp.)^{2/3}$

Special case of minimum resistance to flight.

40. T_f (min.) obtains when $(T_p = T_s)$.
41. $\therefore T_f$ (min.) = $2 T_p$ (lbs. thrust/sq. ft.)
42. $= \frac{V^2 \tan^2 \beta}{200}$
[Where β is angle of least resistance.]
43. $= \frac{200}{V^2 \tan^2 \beta}$
44. $\therefore T_f$ (min.) = $\frac{V^2 \tan^2 \beta}{200}$ (lbs. thrust per lb. loading)
45. $= \tan \beta$
[Where β is the angle of least resistance.]
46. Angle of least resistance.
47. β (min.) obtains when $T_p = T_s$.
 $\therefore \frac{V^2 \tan^2 \beta}{400} = '000018 V^2$
48. $\therefore \tan^2 \beta = '0072$
49. $\therefore \tan \beta = '085 = \tan 5^\circ$
50. $\therefore \beta = 5^\circ$ [approximate].
51. Least thrust (for $\beta = 5^\circ$).
 $= '000036 V^2$ (lbs. thrust/sq. ft.)
[From formula 44.]
52. $\therefore T_f = '085 P_\beta$ (lbs. thrust/sq. ft.)
[From formula 46.]

Flight speed and loading for $\beta = 5^\circ$.

53. $= '000425 V^2$ (lbs./sq. ft.)
[From formula 10.]
54. $\therefore V = \sqrt{\frac{200 P_\beta}{\tan \beta}}$ (miles per hour.)
[From formula 10.]
55. $= 48.5 \sqrt{P_\beta}$ (miles per hour.)
56. Least power.
57. hp. (min.) = $\frac{T_f V}{375}$ (min.)
58. $= '00000006 V^3$ (hp./sq. ft.)
59. $= 96 \times 10^{-9} V^3$ (hp./sq. ft.)
60. $= '0109 (P_\beta)^{1/3}$ (hp./sq. ft.)

The fundamental formula linking pressure and inertia is that given in No. 1. The expression for mass in Formula 2 is illustrated by Diagram 1, and the expression for final velocity of discharge on which the acceleration of the mass is based is illustrated by three diagrams numbered 2, 3 and 4. Of these the two former show the conditions for an entry tangential to the line of flight and for a dipping front edge. The third diagram, representing Formula 6, shows an approximate expression for the angle of deflection, which can be used when the angle is small. The acceleration is derived from the final velocity on the assumption that the camber of the plane is such as to produce uniform acceleration from entering edge to trailing edge. The chord length on which the time is calculated in Formula 7 is the effective chord length during which the camber maintains acceleration; it does not include a tangential extension of the trailing edge whether flexible or rigid. All the formulæ in the list are based on the approximation to the angle of deflection given in Formula 6. The results of applying Formula 10, which is the final expression for the lift of a plane on this basis are shown graphically in Diagram 5. It has already been explained that a numerical constant used with this formula will serve as a correction when the chord or the span or the sweep or the angle show a practical difference between their effective and measured values.

It is assumed that the thrust required to propel a plane overcomes two resistances, the resistance to the support of the load and the resistance to skin friction. In this consideration, the body resistance of a practical aeroplane is ignored on the ground that it should be reckoned as an independent factor to be provided for after the planes themselves have been calculated for a given speed and loading.

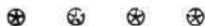
In respect to the resistance to the support of the load, it is assumed that the work done in supporting the load is entirely represented by the energy in the deflected air stratum. If there is any waste elsewhere the value can be corrected by a numerical constant. It is also assumed that the energy in the deflected air stratum can be measured by the application of the fundamental Formula 12, which supposes that the mass has a uniform downward motion in space, and makes no allowance for turbulence. The rate of communicating energy to the mass will obviously be a function of the flight speed, whence Formula 23 provides the final expression for the thrust resisted by load. The thrust resisted by skin friction is derived from an empirical formula, No. 27, which has been based, with certain assumptions, on Zahn's experiments. In order to obtain the total thrust these two factors are added together, as shown

in Formula 31, which can be expressed in terms of the load, as shown in Formula 34. From this last expression it will be observed that the ratio of thrust to load is independent of flight velocity; that is to say, the power required for maintaining the flight of the plane alone is only directly proportional to the first power of the speed. Formulæ 37-39.

In view of the fact, however, that the body resistance is to be considered as an independent factor, it is necessary to bear in mind that the above statement is modified for a practical aeroplane, because the body resistance represents in itself a function of the square of the velocity, and consequently the power expended on forcing the body through the air becomes a function of the third power of the speed. The significance of this deduction depends on the relative numerical values of body resistance and plane resistance in a practical aeroplane; the relationship of their respective laws indicates that it is absolutely essential to keep the body resistance down to the minimum, as, for instance, by boxing the principal objects in stream line casings, in order to obtain high speeds with economy.

The relationship of loading to power for a plane of stated angle is given in Formula 40, which represents one of the most important laws in aerodynamics.

The special case of minimum resistance to flight on the part of the planes alone is treated separately in Formula 41 onwards. The basic assumption underlying these deductions is that the resistance to load is strictly inversely proportional to the square of the velocity, and that the resistance to skin friction is strictly directly proportional to the square of the velocity. This second assumption is only even approximately true, according to Zahn's experiments, up to a speed of about 90 m.p.h. On the basis of the foregoing assumptions, the minimum resistance to flight obtains under conditions stated in Formula 41, from which a value for the angle of least resistance can be directly deduced. The angle in question, as given in Formula 50, is approximately 5° , this being the effective angle of deflection of the air stratum, which, it is assumed, corresponds with the angle of deflection of the plane. The value 5° depends on the coefficient of skin friction, and will change if the value of that coefficient changes. The relationship between the total thrust per unit of load for a plane flying under conditions of least resistance, and under conditions represented by any other angle, is shown graphically in Diagram 6. This diagram indicates the important advantage of designing the planes for low resistance by reducing the angle of deflection, but also shows the danger of making them too flat.



CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in **FLIGHT**, would much facilitate ready reference by quoting the number of each such letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

JET PROPULSION.

[1026] I have been looking through some back numbers of **FLIGHT**, and I came across a letter (444) from W. Le Maitre describing a new method of propulsion. His idea was this: That by ejecting into the air volumes of gas or steam he would displace the atmosphere backwards, and so propel his aeroplane forwards.



This method has been tried by the first makers of dirigible balloons, but it was not successful. But, following up this idea, we come across another method, which I think is perfectly feasible. When a bird is flying the wings move upwards, downwards and backwards, and when they come down they press close up against its body, thus displacing a certain amount of air backwards and downwards and propelling itself upwards and forwards. Therefore, if a monoplane were taken on and to the front planes were fixed another pair of planes, like this, and moved up and down, I think a certain amount of air would be displaced backwards and downwards, thus forcing the machine upwards and forwards.

Sparkhill, Birmingham.

H. H. HAYES.

PENDULUM STABILITY.

[1027] Many thanks for kindly inserting my letter (898), re pendulum natural stability, in your popular journal. If I may be allowed to criticise your opinion, I do not consider Lilienthal or Pilcher members of the pendulum school. Lilienthal, the better example of the two (for my purpose), I gather from the illustrations and drawings published in **FLIGHT**, No. 53, used his body, pivoted, as it were, from his armpits, as an equilibrator, and I've no doubt, had he by some means secured his feet rigidly at right angles to his wings, his experiments would have been more satisfactory.

Thanks to Planes, Ltd., we now have a practical machine. Looking at it from a purely scientific point of view, I consider it an improvement on all machines employing the disastrous gauchissement method of stability. The simplicity of control and the success already achieved with this new departure, almost convinces me that this is a working model of the "perfect flyer" expected in two or three years hence. With all due apologies, and wishing your paper every success.

Audlem.

THOS. KELHAM.

"ALL-BRITISH ENCOURAGEMENT."

[1028] As one who has studied the problem of flight for nearly twenty years, I should like to point out that it is not obvious how the operation of placing the modest sum of £100,000 in the pockets of a few flying men is going to convince the foreigner that our brains are better than his. Our flying men all use foreign machines, driven by foreign propellers and engines, or else slavish copies of the same. One never hears of their inventing anything or improving anything. It is not the flying men but the science of flight that needs encouragement, and this will be in no way advanced by a repetition of sensational performances, which only prove the skill and daring of the performer.

The present type of flying man, like the racing cyclist and motorist,

has done his part, and done it admirably, in calling attention to the wonderful possibilities of flight, but the general public are no more likely to imitate his feats than they were the wonderful performances of the crack racing men. The public did not buy racing cars, and they do not want the present type of flying machine, costly to buy and still more costly to use. If the flying machine is to stay with us it must be in a compact form that can be housed in any motor garage; that can be easily transported by road and rail; that will be able to rise into the air from anywhere; and, above all, that will be able to descend in safety under all reasonable conditions.

Germany and France have realised this already. The prizes offered by the French Government for competition in October next are not for sensational performances by flying men, but for demonstrations of practical utility, and are intended for inventors, designers and constructors. No aeroplane at present existing is likely to be able to pass the tests imposed, for the simple reason that, as Edison pointed out some time ago, the aeroplane is built upon the wrong principle. It depends upon that mode of the law of motion called "motion of translation," and its defects, lack of ability to rise vertically, and to stand still, or to travel slowly, are fundamental. Its prototype, the bird, although endowed with life and possessed of marvellous skill, suffers from the same disabilities in a lesser degree, and for the same reason. The bird is, indeed, very far from being a perfect flying machine, and, with the exception of sea birds, employing the wind as a sustaining force, and gravitation as motive power, it is a fair-weather animal. The bird is not Nature's masterpiece, but the work of her 'prentice hand.

The solution of the problem of flight, of which I claim to be the discoverer, lies in an application, not hitherto used by man, of the mode of motion known as "motion of rotation." It gives a direct vertical lift of enormous power, enables the flying machine to remain poised, or at rest, in the horizontal plane, in still air or in a wind, and gives horizontal movement, both forwards and backwards, from a slow to a high speed. No screw propellers or helicopters are used, and planes are unnecessary. The principle has been thoroughly verified and proved to be sound, after critical examination by English and German physicists and engineers. The mechanical application has been worked out and tested, and the building of a full-sized machine has been commenced. Now comes the tug-of-war. How, single-handed, with little leisure time and money, to get it finished and tuned up in time for the *Daily Mail* Competition in July, assuming always that it would be allowed to compete, for it is not, in any sense of the word, an aeroplane? The unsympathetic attitude of the Aero Club and the British Press towards British inventors, and the consequent apathy of the public, have had their natural effect upon the capitalist, so it looked as if I should have to go on ploughing my lonely furrow. But your article gave me an inspiration. I had never thought of "Sunbeam Pills" and "Moonshine Soap" in this connection. Why should not the proprietors of one of these well-known household necessities say to a deserving inventor—whose only crime is that he was born English instead of American or French—"Prove to the satisfaction of three scientists, nominated by us, that your newly-discovered principle is sound; demonstrate to them by working model that you can apply that principle in the way you propose, and we will help you to build your machine and give you a sporting chance?"

The War Office and the Aero Club, the *Morning Post* and the *Daily Mail* have all of them "encouraged" (?) British aviation by putting large sums of money into the pockets of Frenchmen, each in its own particular way. To encourage it by helping a British inventor to build a flying machine of purely British design, and dependent upon a principle discovered by British research would be an entirely new departure. The novelty of the idea would appeal to the public, and "Sunbeam Pills" could count upon a cheap and valuable advertisement, even if the machine should never win a prize. Apart from which there would be the *kudos* that would accrue to them from being the first capitalists in the history of British aviation to come to the help of

"BRITISH BRAINS."

[No independent and observant reader can very well fail to be impressed with the completeness of the answer which "British Brains" himself supplies to the criticism contained in the first portion of his letter. When he admits that his own aim is to complete his machine in order that it may compete for the *Daily Mail* prize, surely he thereby certifies to the value of all such prizes as incentives to inventor, to capitalist, and to manufacturer, alike as to the flying man who ultimately acts as pilot? Does not "British Brains" ask too much that subsidy should be paid direct by public benefactor (or by astute seeker after advertisement) to an individual inventor of whom he knows little if anything? And can anyone reasonably urge more than that an incentive be offered of sufficient attractiveness to enable each inventor to gather his own friends around him to the financial extent that is needed for qualifying him as a competitor?—ED.]

MODELS.

MODEL DESIGN.

[1029] Requery models 877, issue of November 5th. It is difficult to arrive at the cause of a model's failure to fly successfully from a photograph and data as given. The cause in this case may be due to c.g. and c.p. not being coincident; as, unfortunately, in models of this type the c.g. usually lies very much further back, owing to disposition of weight of elastic motors, &c., than in the prototype. This can only be got over by moving the main planes further back, or by attaching a lead weight to the machine as far forward as possible, until the c.g. is approximately situated about the centre of the main planes, tail assumed to be non-lifting.

Assuming correct camber, the angle of incidence, according to my own experience, should not exceed 3° . The propeller in this case should, in my opinion, be at least 12 ins. diameter and pitch about 24 ins. Increase strands of rubber until sufficient power is obtained, if necessary. Strip rubber would seem to yield a greater torque for same cross section than square section. The dihedral angle should be rather pronounced in order to lessen the effect of torque due to single propeller. Also, if necessary, a small lead weight can be attached to the extremity of the wing to assist in this. Flight speed of this machine roughly about 20 m.p.h.

R. L. B. STEELE.

MODEL BLÉRIOT CHASSIS.

[1030] Seeing in *FLIGHT* a type of chassis for a model Blériot monoplane, we beg to submit another type which is light, strong, and simple to make.

In the sketch enclosed the idea is seen.

A thin cane is fixed on the front of the fuselage on either side,



the ends of which are fixed on to a wooden axle. A wire is then fixed to the axle, and is pulled up to the fuselage to give the cane a bend, so as to give when landing after a flight.

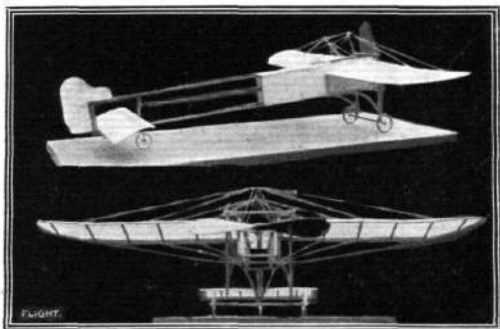
Could you kindly put us in touch with any persons in this district who are desirous of forming a model aeroplane club?

Ashford, Kent.

R. A. JAMES and P. E. THOMAS.

MODEL BLÉRIOT.

[1031] Enclosed please find photos of a model Blériot we have built. The principal dimensions are as follows:—Main plane, span



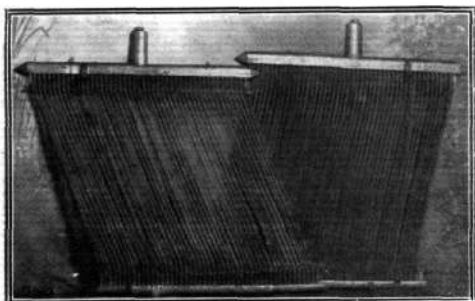
34 ins., chord 5½ ins.; elevator, span 12 ins., chord 3½ ins.; length overall 48 ins. The tractor is 10 ins., cut from a solid block. The machine will raise itself from the ground under favourable conditions.
Herne Hill.
L. WILLIAMS and M. PALMER.

MODEL BIPLANE.

[1032] I have just made a biplane of the new Cody type, 30 ins. wide and 24 ins. long from tail to elevator, and its weight is 7 ozs. At present I have a 10-in. propeller, and 3 yds. of elastic ⅜ in. wide on it. The propeller revolves at 600 r.p.m., but this is not enough to drive it along. The distance from the propeller-shaft to the front of the elevator, where elastic is attached, is 12 ins. How can I increase the number of r.p.m. of the propeller to make it go?
Does it want more elastic or a bigger drive, or would a couple of propellers be better than one? Or is it because the elastic is not strong enough?

H. E. BATHO.

[The best move would be to try two propellers; they ought to give a better combined thrust than would be available from one screw with more elastic.—ED.]



Mr. Grahame White's radiators, after his smash on Dover Cliffs towards the end of December, just as they reached the makers, the Spiral Tube Company. By means of tests they found there were five small leaks only, due to the points of screws in some wooden cross-pieces piercing a few tubes.

NEW COMPANY REGISTERED.

Sloan Aeroplane (International) Synd. (Ltd.), 26, Budge Row, E.C.—Capital £40,000 in £1 shares.

PUBLICATION RECEIVED.

All the World's Airships (Aeroplanes and Dirigibles): Flying Annual. By Fred. T. Jane. London: Sampson Low, Marston, and Co., Ltd. Price 21s. net.

DIARY OF COMING EVENTS.

British General Events.

Mar. 10-18	Olympia Aero Show.
July	.. Daily Mail Round England Contest.
July	.. Gordon-Bennett Aviation Cup Contest.
Oct. 31	.. Close of British Michelin Cup.
British Clubs and Associations.	
Jan. 12	.. "Design and Flying of Model Aeroplanes." Paper by Mr. W. Rowland Ding at Central Hall, High Street, Peckham.
Jan. 18	.. "Motive Power in Aeroplanes." Paper by Capt. A. D. Carden, R.E., at Northampton Institute.
Jan. 20	.. "Conquest of the Air and Problems." By A. E. Berriman, at Manchester Ae.C.
Jan. 24	.. "Aerial Travel." Lecture by Miss Gertrude Bacon at Ladies' A.C.
Jan. 24	.. "Competitions for Aeroplanes. Their past, present, and future." Lecture by Mr. H. Massac Buist at Midland Aero Club, Grand Hotel, Birmingham.
Jan. 25	.. "Lines of Aeronautical Research." By Mr. B. G. Cooper at Northampton Institute.
Jan. 28	.. Aeronautical Society Visit to Teddington National Physical Laboratory.
Jan. 30	.. "Art of Aviation." Lecture at London Institution by Mr. Robert W. A. Brewer.
Jan. 31	.. Royal Aero Club Annual Dinner, Prince's Restaurant.

RECORDS.

Duration.—Henry Farman (France), at Etampes, on a Henry Farman biplane fitted with a Gnome motor: 8 hrs. 12 mins., covering 463 kiloms. (288½ miles).

Distance.—Maurice Tabuteau (France), at Buc, on a Maurice Farman biplane, 584·935 kiloms. (365 miles) in 7h. 48m. 31½s.

Altitude.—A. Hoxsey (U.S.A.), at Los Angeles, on a Wright biplane, 3,497 metres (11,474 ft.).

Speed.—A. Leblanc (France), on a Blériot monoplane, fitted with Gnome motor, 5 kiloms. in 2 mins. 45½ secs. = 108 k.p.h. (67½ m.p.h.).

Straight Line (not recognised by F.A.I.).—J. Radley (Great Britain), at Lanark, on a Blériot monoplane with Gnome engine: 1 mile in 47½ secs. = 75·95 m.p.h.



Aeronautical Patents Published.

Applied for in 1909.

Published January 19th, 1911.

- 30,143. C. TEASDALE-BUCKELL. Aeroplanes.
30,521. D. BANKI. Aeroplanes and airships.

Applied for in 1910.

Published January 19th, 1911.

- 19,426. H. AND H. A. SANDERS. Aeroplanes and aerial machines.
21,189. O. HELSING. Aeroplanes.
23,030. R. ESNAULT-PELTERIE. Carburettors.

BACK NUMBERS OF FLIGHT.

ALL back numbers, except those specified below, can still be obtained from the publishers, post free, 1½d. each, including descriptions and scale drawings of the Voisin (Nos. 33 and 34), Curtiss (No. 27), Cody (No. 34), Farman (No. 42), and Wright (No. 63) biplanes, the Santos Dumont (Nos. 40 and 41), and Grade (No. 50) monoplanes, and of a full-size Wright glider (Nos. 38 and 39).

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